

DESIGN AND USE OF MEDIA

9

- Training Delivery Options ◀
- Media Selection ◀
- Principles of Design ◀
- Teaching Aids—Prepared and Spontaneous ◀
- Getting Started—Design Your Own Teaching Aids ◀

OVERVIEW



Suggested instructional time for this lesson: 1.5 hours

Introduction

This lesson presents different media options to incorporate into your lesson presentation. You will learn what media is available, how to select and design appropriate media, and be given information about different types of equipment.

Lesson Objectives

Through group discussion, question and answer sessions, and small group activities, the EMS instructor trainee should be able to:

- List four steps in the media selection process
- List three purposes of media decisions
- Select appropriate media to achieve instructional objectives
- List five components of a lecture box or AV tool kit

Materials Needed

- Overhead projector and screen
- Flipchart (prepared objectives)
- List of media resources
- Blank transparencies, markers
- Sample demonstration props, posters
- EMT-Basic Lesson

Instructional Strategies

- Lecture
- Discussion
- Question and answer
- Visual Aids
- Demonstration (if needed)
- Practice (if needed)

Audiovisual Equipment (optional)

- | | |
|--------------------------|---------------------------------------------------|
| ■ Slide projector/slides | ■ TV/VCR and videotape |
| ■ Film projector/film | ■ Video camcorder |
| ■ Laser pointer | ■ Audiocassette player/tape |
| ■ LCD Display panel | ■ Computer generated
projection equipment/demo |

This audiovisual equipment is optional and should be provided and/or demonstrated depending availability and the needs of the students.

Lesson Objectives**I. Training Delivery Options****TRAINING MEDIA**

- **Printed Material**
- **Presentation Aids**
- **Film/Video**
- **Audio Tape**
- **Computer-Based Training**
- **Teletraining**
- **Correspondence Courses**

ADDITIONAL INFORMATION

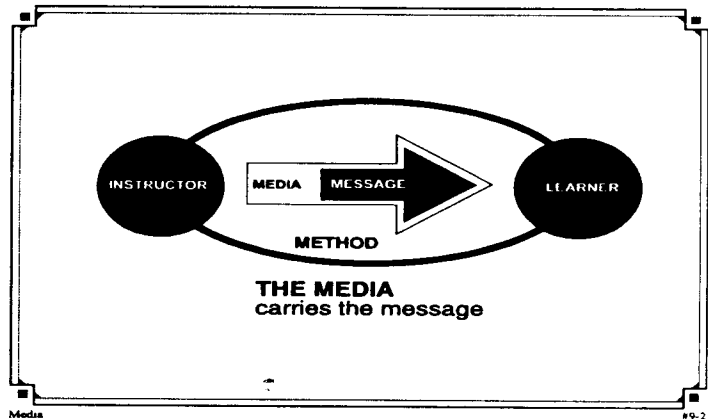
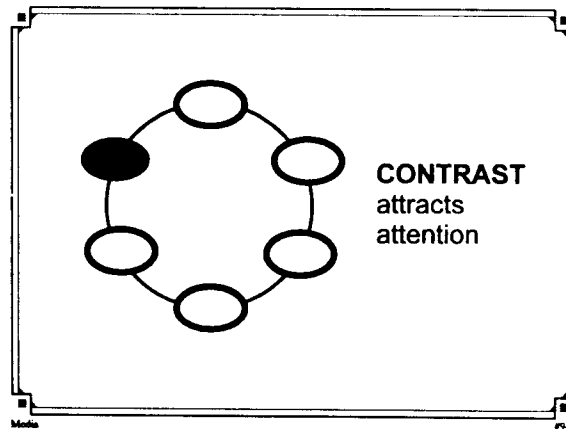
I. Training Delivery Options

One of the most interesting and challenging decisions in the instructional design process is the selection of the medium or media to use to deliver the instruction. Over the last ten years, the options for media used for training purposes has increased significantly. A variety of high-end, technology-based training media are available. However, "high-tech" does not mean better. Appropriate media are determined by a number of factors which must all be considered for "best fit" solutions.

Classroom instruction (instructor-led) is comprised of standard instructional techniques, such as lecture and slide presentations, which can be enhanced by employing some of the instructional strategies you learned about in Lesson Eight. The primary advantage of instructor-led training is face-to-face interaction. Disadvantages include travel costs to delivery sites, accessibility to a far-flung student population, and course standardization. Standardization is affected primarily by differences in individual teaching styles and experience levels.

Teletraining is delivered as a video broadcast to remote locations via satellite. Basic teletraining involves transmitting a presentation, either live or taped, to remote locations with one-way audio and video. Student responses are typically mailed. Teletraining systems are becoming more sophisticated and increasingly simulate a regular classroom environment. Instructors are viewed on large screen televisions, and two-way audio (each student has a microphone) is common. Hand-held devices allow students to input simple responses, or to signal a desire to ask a question or provide a comment. Sometimes instructors will hold on-line office hours or, by using Bulletin Board Service (BBS), instructors can post questions and hold on-line discussion groups.

Computer-Based Training (CBT) provides self-paced, individualized training using a computer to deliver the instruction. CBT can be designed to accommodate students of varying experience levels. Although substantial development costs are typical, CBT provides standardized instruction that proves cost-effective when used repeatedly by large numbers of students in many locations. Another computer-based training option involves fully equipped learning resource centers, which enable instructors to present material to students seated at workstations around the room via a networked client-server system. Depending upon the design, students can work

II. Media Selection**A. Media, Methods, and the Message****B. The purpose of media decisions****1. Emphasize**

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individually or as a group, using the networked system. This is used most often in training on computer software.

Correspondence courses also provide self-paced instruction. Correspondence courses are typically paper-based but can include CBT and video components. If students have questions, there is generally an instructor or designated subject matter expert who can be reached via telephone or mail. Correspondence courses are excellent for teaching students in remote areas. However, students do not have the advantage of face-to-face time with the instructor or sharing knowledge with other students.

II. Media Selection

A. Media, Methods, and the Message

The word media is derived from a Latin word meaning "between" and refers to anything that carries information between a source and a receiver—for our purposes, the instructor and the student. We're differentiating here between the media that carry the message, the message itself, and the methods used. The message is the course content. The instructional methods are the context in which the message is communicated—those processes that the instructor selects to help learners achieve the course objectives.

Instructional media are selected to help students understand the message. They facilitate communication by making the content more easily understood.

B. The purpose of media decisions

1. Emphasize

A primary concern of the instructor should be to ensure that visual cues guide students to important concepts and make essential material stand out. This can be accomplished through the use of headings, wide left margins with limited text, boldfaced headings, italics, and larger typeface. A tip: underlining text is not recommended; it has little impact on retention and interferes with the student's own processing and categorizing of the information. Emphasize important ideas; don't force the reader to search for key points. Refrain from using capitals to highlight because they are difficult to read; capitals can be used effectively in short headings.

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2. Organize

3. Clarify

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2. Organize

Use visuals to present material in an organized manner to students. Provide diagrams and flow charts of sequential steps if appropriate. Research indicates that adult learners benefit from an exercise in which they are given printed material and then are asked to generate their own "graphic organizer." This could be a simple outline, labelled clusters of circles, flow charts, graphs, etc.

Effective organization of material is essential to learning. Material should be reviewed to determine if there is a clear focus to each section. In terms of writing style, start all sections with an introduction, and all paragraphs with a topic sentence. Label text so that readers can locate the information they need.

3. Clarify

A prime instructional objective is clarity; it is the cornerstone of understanding. The media you choose should clarify difficult concepts. For example, the use of a pig heart dissection when discussing the cardiovascular system clarifies concepts that may be difficult to understand with words alone. Remember back to the "apple" exercise in Lesson 4. Symbolic representations of concepts, such as words, are not as effective at getting the point across as the real thing.

To be sure that your teaching aids aren't confusing, follow these rules:

- Keep your writing style simple
- Provide ample white space
- Highlight important ideas with color, boldface, or italics
- Use a typeface that is easily read
- Eliminate hyphens
- When using technical terms, include definitions
- Always spell out acronyms on first use, and again for new sections

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C. Factors that affect media decisions

1. Resources of the training site
2. Expertise and production capabilities
3. Flexibility, durability, and convenience
4. Cost effectiveness

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C. Factors affecting media decisions

Practical considerations will always be a factor in media selection.

1. Resources of the training site

An important factor in media selection is the projected availability of various media in the environment in which the instructional package will be used. If the materials will be used in the learning resource center of a public school, community college, or university, then a whole array of media devices will probably be available. However, if the package is designed for home study or use in a community center where this equipment is not likely to be available, then you must either find a way to make the equipment available or limit yourself to paper-and-pencil types of instructional materials.

2. Expertise and production capabilities

The ability to manage the media which you incorporate in the instructional package is also a concern. There is a "learning curve" that must be factored in if you choose unfamiliar equipment. The ease and costs of production are also factors.

3. Flexibility, durability, and convenience

The flexibility, durability, and convenience of the materials are other factors. Is the equipment found only in a learning center, and is there a learning center available? Is it open during hours when students can use it for independent study? Are the materials and equipment transportable?

4. Cost effectiveness

Another factor is cost effectiveness. This should be evaluated over the term of expected use, for one medium compared to others. Some materials may be initially more expensive to produce in one medium than another, but these costs may be equalized when you consider how the costs will be amortized over a large number of students or a long period of time. It might be cheaper to videotape a presentation for a large group of students to view again and again as needed, which frees the instructor to work with small groups of students or to help individuals solve problems.

*PARTICIPANT NOTES**LESSON PLAN***D. The media selection process****EVALUATION PROCESS**

- **Review objectives**
- **Determine options**
- **Determine feasibility**
- **Select "best fit" media**

Media

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Media Design**III.****A. What are design elements?**

1. Definition
2. Instructional value

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D. The media selection process

The media selection process should be rooted in the course objectives. Some media are more effective for teaching cognitive objectives while others are more effective for psychomotor skills. Consider the targeted learning domain, the methods of instruction, and what media will best help learners to understand the course content.

III. Media Design

Message development and design entails creating and combining design elements in a pleasing, understandable manner in order to capture interest and convey information effectively.

A. What are design elements?

1. Definition

The use of *design elements*, such as boldface and italics, can increase the impact and instructional value of words. Font selection, size, and color—those things that affect the appearance of text—are all examples of visual design elements.

2. Instructional value

The instructional value of visuals, in the form of photographs and slides, graphics such as pie- or flow- charts, cartoons, and design elements such as lines, boxes, shapes, highlighting, and the use of color has been extensively investigated.

These visual "cues" have proven effective in grabbing the learner's attention, helping he or she to process information and understand it, and increasing what is remembered of the content. In order to develop messages that communicate effectively, instructors must deal with both the message itself and the design elements that, if properly applied, can increase learning.

Research related to learning from visuals indicates that relevant pictures or drawings help learners to understand and recall the content of verbal delivery or printed text. For example, graphics, pictures, or drawings presented prior

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B. What factors should be considered in media design?

1. Legibility

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to instruction, known as advanced organizers, provide a context for the information that follows. This helps learners to organize information and thus aids cognitive processing.

Visual aids play an important role in studying specific subject matter, for example, the medical diagrams that are so much a part of EMS instruction. Visual aids promote learning by providing a visual representation of the system with labelled components, versus a text-only description of the material.

As an instructor, use as many visual representations as are appropriate. If the image helps to convey the message better, use it.

B. What factors should be considered in media design?

Three important factors to consider when evaluating or creating media are legibility, consistency, and relevance. These factors should then be evaluated in the light of the overall purposes to be accomplished, e.g., to organize, clarify, or emphasize particular content.

1. Legibility

As stated, media is used to clarify content. This is only possible if the material is easy to read. Different things affect legibility, such as color, size, and complexity.

Color. The following color combinations are listed in descending order of legibility: Black on yellow; green, red, or blue on white (clear film); white (clear film) on blue; black on white (clear film); yellow on black.

There is a physiological reason for differences in perception based on color that have to do with how colors are focused in the human eye. Warm colors, such as red and yellow, seem to approach the viewer, while cooler colors, such as blue and green, recede. Instructors can capitalize on this tendency by highlighting important points in red and orange.

Size. The size of the letters used should be easily read when used as intended. For example, billboards use very large text, because they are meant to be read by the passengers of cars whizzing by at 65 miles per hour.

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2. Consistency

3. Relevance

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Likewise, transparencies are often meant to be read from the back of a large lecture hall. Be sure that the text is large enough to be read easily.

Amount of material. The amount of material should fit the media selected. A textbook page, designed to be read, can have fairly small print and a variety of fonts. However, for overheads, meant to be projected in a darkened room to a group of students, a good guideline is 7 lines of text in a clear, easy to read type style. Posters designed to be mounted on the wall and read at leisure can include diagrams with a great deal of detail. Motivational posters, on the other hand, should have a limited amount of text with eye-catching pictorial or graphic elements.

2. Consistency

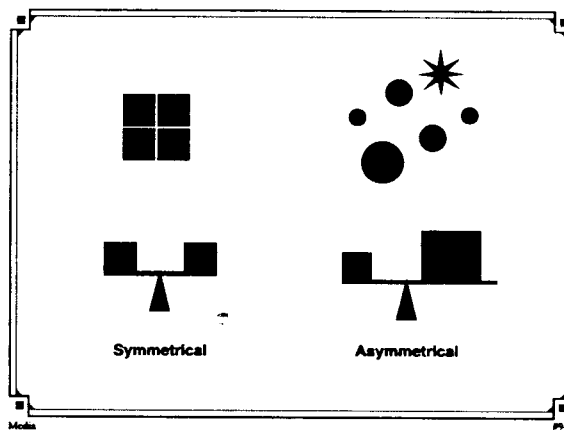
Consistency ties related elements into a coherent whole, thus creating unity and balance. If you use boldface headings in one section, continue the practice throughout, so the reader will be able to predict the significance of the visual cue. Additionally, supporting media should be consistent with primary course materials. Instructors should determine if there are any inconsistencies and be prepared to address them.

3. Relevance

The principle of relevance has to do with making sure that supporting media specifically pertain to course content. Instructors should review materials, such as videos, and evaluate the content in terms of lesson objectives. The *significance* of the content presented via supporting media should always be a consideration. Use supporting media deliberately, to emphasize key points.

*PARTICIPANT NOTES**LESSON PLAN***C. Principles of Design**

1. Unity
2. Balance



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C. Principles of Design**1. Unity**

Unity is achieved by using related or repeated themes, colors, shapes, and types and formats of graphic elements, such as lines and boxes.

Eliminate nonessentials; do not clutter your design with extraneous information, whether verbal or visual. When developing your message, organize the information into distinct categories with a clear focus, so that you communicate only one idea at a time.

2. Balance

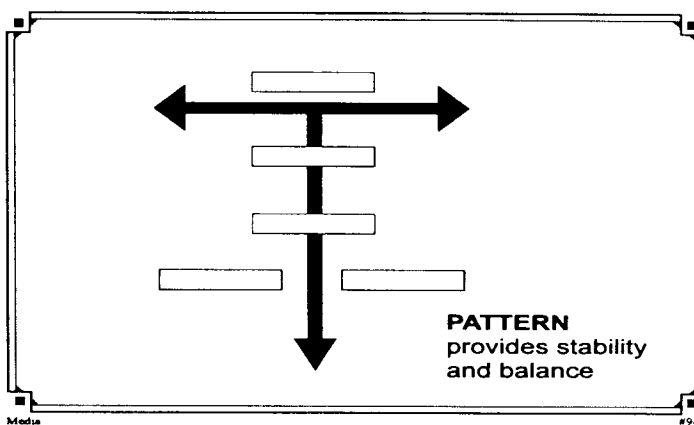
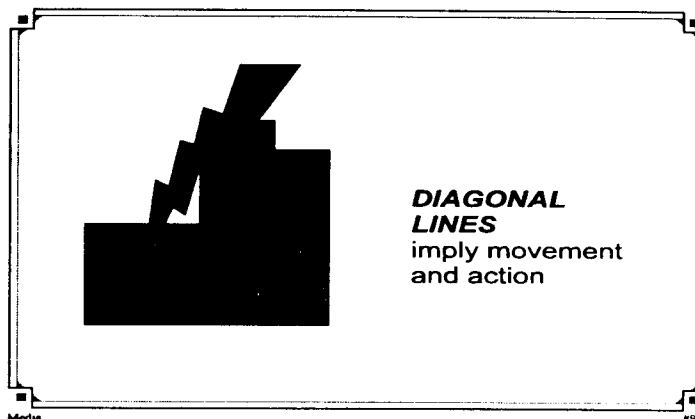
Balance describes the pattern of the elements in the visual. It engenders a psychological sense of equilibrium. The "weight" of the elements should be distributed equally on each side of an axis, vertical and horizontal.

Balance can be achieved with symmetrical or asymmetrical arrangements. In most cases an informal, asymmetrical arrangement is more interesting and dynamic, and is especially suitable for posters and graphics. Aim for a rough equivalence of weight, but use diverse elements. For example, one large open square on one side, three dark circles on the other. Predictable patterns, such as regular geometric shapes, provide a convenient framework for screen design, as do arrangements that approximate certain letters of the alphabet, such as C, O, T, and S.

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3. Perceptual impact of different designs



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3. Perceptual impact of different designs

The perceptual impact of pictures, colors, etc., is considerable. Be sure that the impact is consistent with your message. For example, if you are attempting to attract volunteers to a fund-raising barbecue, bright colors, fun graphics, and bold text correspond with the message. However, if you are encouraging employees to take part in a stress reduction workshop, a more formal, symmetrical arrangement and soothing colors will impart a sense of serene tranquility.

IV. Teaching Aids**A. Prepared vs. spontaneous****B. Prepared Media****PREPARED MEDIA**

- Printed material
- Presentation aids
- Films/video
- Audio tape
- Simulation/props
- Computer-based programs

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IV. Teaching Aids

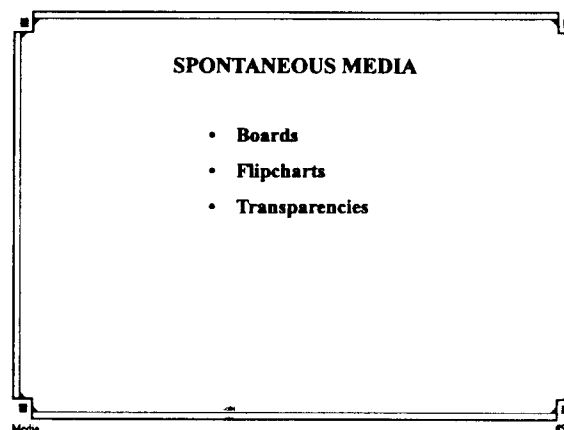
A. Prepared vs. spontaneous

Some media are prepared completely prior to class; others are created as part of a discussion or activity. Prepared media necessarily have static content until updated outside of class. With spontaneous media, the instructor will have specific content in mind, but the process is flexible and creative.

B. Prepared Media

Prepared media offer the advantages of allowing time for preparation in advance of presentation and the ability to target specific content. Development time allows the instructor to create polished, complex materials that reflect exactly those points he/she considers vital.

Refer to reference 9-1, Training Media, in Appendix B, for in-depth information about a variety of prepared media.

C. Spontaneous Media**1. Overview**

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C. Spontaneous Media**1. Overview**

Interactive creation, or the process in which an instructor solicits input from students while employing an instructional aid, is valuable for a number of reasons. First, the students become invested; their thoughts are being incorporated into the product. They have a sense of directing outcomes; this is particularly attractive to adult learners. Spontaneous creation works well when a variety of subjective interpretations are possible, or when the applications are endless. Still, instructors should keep in mind that interactive creation *should be* directed by course objectives. You should be prepared to complete the process by filling in specific points, or by guiding the discussion so that all significant elements are addressed. We will discuss three basic types of spontaneous media.

Boards. Both traditional chalkboards and "whiteboards," which are used with special erasable markers (adds color), offer large work spaces for creating diagrams, outlining major concepts, flowcharting processes, or in other ways reinforcing lecture material. Instructors have the option of distributing printed handouts, but the immediacy and movement of spontaneous creation adds energy to a class discussion. Information can be left up to the class while other aids, such as transparencies, are being used to develop other points. This allows students time to absorb and record material.

Flipcharts. Flipcharts do not allow as much space as boards, but they do have the advantage of creating a permanent record. Pages can be saved and used later, perhaps in a group activity to further develop concepts, or they can be displayed around the room to continually reinforce key ideas. They are transportable. To ensure everyone can see the flipcharts, this medium is best used in groups of no more than twenty to thirty.

Transparencies. Transparencies can be used to record student input in much the same way as a flipchart. They are usually easy for everyone to see.

Practice using a variety of spontaneous media in your classroom instruction. This keeps interest and involvement high.

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D. Activity 9.1—Create Your Own Media

1. In-class preparation time
2. Additional preparation
3. Demonstration and practice

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D. Activity 9.1—Create Your Own Media**1. In-class preparation time**

Have the class divide into groups of three. Using the EMT-Basic lessons, group members will help each other in the creation of teaching aids to support lesson content. Encourage diversity, creativity, and valid application of learning theory, etc.

Develop your message. Have each individual write down the key information or skills that must be communicated.

Discuss with your peers. Obtain feedback from the group. Often brainstorming can generate unique and creative design concepts.

Layout design. Each student should develop one piece of supporting media each, such as an overhead, chart, poster, or checklist. Instruct them to present a draft to the group members. Encourage positive and corrective feedback.

2. Additional preparation

Students must create or acquire supplemental media in presentation form for their assigned EMT-Basic lesson. Provide media resource information, supplies, and in-class work time as needed.

3. Demonstration and practice

Media that is cumbersome to use, or that is used ineptly, distracts from learning. Instructor Trainees should become comfortable operating equipment and practice writing on boards and flipcharts prior to their presentations. They should try operating equipment prior to class and make sure transparencies are labelled clearly and stacked in order.

V. Equipment**A. Types****TYPES OF EQUIPMENT**

- **Projectors:** overhead, slide, film
- **TV/VCR**
- **Computer-generated displays**
- **LCD display**
- **Laser pointer**
- **Audio cassette recorder**

Media

P9-10

B. Getting ready to teach

1. Put Together a "Lecture Box"

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V. Equipment**A. Types**

- Projectors: Overhead, Slide, Film, sample media
- TV/VCR, sample videotape
- Audio Cassette Recorder, sample educational audiotape
- Computer-generated projection equipment and demo disk
- LCD Display, sample graphic
- Laser Pointer

The focus of the equipment portion of the Media lesson should involve preparations for the Final Presentations. Students who are unfamiliar with the equipment they will be using should be given a demonstration and an opportunity to practice.

If time limitations allow, provide a demonstration of the newer technologies, such as computer-based instruction/presentation equipment. These innovations are becoming more readily available and may be of interest.

B. Getting ready to teach**1. Put together a "Lecture Box"**

Whether teaching locally or at a distant site, it pays to have the materials and equipment you will need when lecturing organized in one convenient place, ready to go, in easily transportable storage. Ideal for this purpose is a hard plastic box with a handle, such as those designed to hold hanging files. These are available at office supply stores, and although large enough to hold all of the materials suggested here, they still qualify as carry-on luggage on airplanes.

Include speaker's notes and any handouts or references for the class. Suggestion: keep notes in a 1/2 inch three-ring binder to prevent disarray if dropped. Any information about the lecture location, contact names and phone numbers, course flyers and directions can be placed into a labeled hanging file folder. A carousel of slides (two will fit if some other items are eliminated) is a necessary addition for many presentations. It is a good idea to include a mini slide viewer for a last minute check of slides prior to class.

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2. General media supplies

VI. Summary

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One frequent lecturer, the source of the "Lecture Box" concept, suggests including hemostats to separate stuck slides.

You might consider including a kitchen timer to place on the lectern to keep track of time, and a small, battery-operated reading light for unlit lecterns. A handheld tape recorder allows you to tape your lecture and review it later for self-evaluation. Listening to the tape would be a good way to prepare when lecturing again on the same subject. Be sure to include batteries for all equipment, and spare light bulbs (for overhead projector). Finally, a retractable pointer (or laser pointer if you have one) is indispensable.

In addition to the items suggested above, it is a good idea to be prepared for any eventuality when using a variety of media. For an AV Tool Kit, include a heavy-duty extension cord and a small case of tools. Screen cleaner and lint-free wipes come in handy.

2. General media supplies

Here are some additional items to have on hand:

- Chalk and colored markers
- Whiteboard markers, a board cleaner, and cloths
- Thumb tacks, tape (for attaching flipchart pages to the walls)
- Batteries
- Light bulbs

VI. Summary

This lesson presented the types of media available, how to select and design media, and how to use various types of equipment. Media is a valuable tool. It provides variety to your presentation, and helps keep students "tuned in."

ADDITIONAL INFORMATION

References

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